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description of 'The Shearwaters and Fulmars as Birds and Bait,' by J. W. Collins. W. P. Lemmon describes a 'Nest of Duck Hawks in New Jersey,' and the balance of the number is filled with notes and reviews.

THE Macmillan Company announces that it will commence the publication on January 1st of the *International Monthly*, a magazine of contemporary thought edited by Mr. Frederick A. Richardson with a distinguished advisory board. The magazine proposes to give in each number a comparatively few articles of considerable length, and science is to have a prominent place. Thus the five articles in the first number include, 'Influence of the Sun on the Formation of the Earth's Surface,' by Professor N. S. Shaler, and 'Recent Advance in Physical Science,' by Professor John Trowbridge. The members of the advisory board as it is thus far organized are :

History: J. H. Robinson, Columbia University ; George Monod, College of France ; Karl Lamprecht, University of Leipzig.

Philosophy: Josiah Royce, Harvard University ; Xavier Léon, Paris ; Paul Natorp, Marburg University ; George F. Stout, Oxford.

Psychology: Edward B. Titchener, Cornell University ; George F. Stout, Oxford ; Th. Ribot, Paris ; Oswald Külpe, Leipzig University.

Sociology: Franklin H. Giddings, Columbia University ; Gabriel Tarde, Paris ; Georg Simmel, Berlin University ; J. S. Mackenzie, Cardiff, Wales.

Comparative Religion: C. H. Toy, Harvard University ; Jean Réville, College of France ; F. B. Jevons, University of Durham ; C. P. Tiele, University of Leiden ; Ths. Achelis Bremen.

Literature: William P. Trent, University of the South ; Richard Garnett, London ; Gustave Lanson, Paris ; Alois Brandl, Berlin University.

Fine Art: John C. Van Dyke, Rutgers College ; Georges Perrot, Paris University ; Adolph Fürtwangler, Munich University.

Biology: Charles O. Whitman, University of Chicago ; Raphael Blanchard, College of France ; E. B. Poulton, Oxford University ; Wilhelm Roux, Innsbruck University.

Medicine: D. B. St. John Roosa, Pres. Graduate School of Medicine ; Sir Thomas G. Stewart, University of Edinburgh ; Leop. Panas, College of France ; Carl Von Noorden, Frankfurt a. M.

Geology: Joseph Le Conte, University of California ; Sir Archibald Geikie, London ; Hermann Credner, Leipzig University.

Departments of Physics and Industrial Arts are to be added.

THE October number of the *Kansas University Quarterly* contains a list of the scientific publications of the faculty and students of the State University. This list, which numbers some 800 books and papers, includes only those publications on natural and physical science and mathematics.

SOCIETIES AND ACADEMIES.

THE NEW YORK ACADEMY OF SCIENCES.

SECTION OF ASTRONOMY AND PHYSICS.

AT the meeting of the Astronomy and Physics Section of the New York Academy of Sciences, on Monday evening, November 6, 1899, Professor J. K. Rees, of Columbia University, gave a lecture, illustrated by lantern views, on 'November Meteor Showers.' Among other things, the speaker said that one of the theories of the origin of some meteors was that they were at some time ejected from the sun or moon, earth, or other planets, by volcanic explosions, and if from the earth, they traveled in an orbit that intersected that of the earth. The later theories which identify meteor streams with comets or the remains of comets, seem most satisfactory. Those meteors which reach the earth have a large percentage of nickel in their composition, and show when they are polished, a peculiar and characteristic crystalline structure. A great many of these meteors reach the earth on an average each day, as many as ten million or more, it has been estimated. Interplanetary space is full of them. During the meteor showers, this number is greatly increased. During the shower of 1833, at one place on the earth as many as 240,000 were estimated to have been visible during eight hours.

Historical records seem to show that showers of meteors have been seen at intervals of thirty-three years in the fall of the year for some time back. In 1799 Humboldt saw one from the Andes Mountains. In 1833 there was another. Professor H. A. Newton of Yale, after investigating the subject, predicted another in 1866,

which came as predicted. Professor Newton and Professor Adams of England calculated that there was a large bunch or collection of these meteors traveling around the sun with an orbit of about thirty-three and a quarter years. This orbit at one point intersected the orbit of the earth. It was later shown that this orbit was practically identical with that of Tempel's comet of 1866. Three other similar cases of a connection between the meteor showers and comets have been found, and these seem to indicate either that the showers and comets are identical, or that the meteors are parts of a disintegrated comet.

In observing the meteors, the best results are obtained from photographs. Professor Elkin of Yale has a battery of cameras fastened to an equatorial axis, each camera covering a distinct part of the heavens. By means of two such arrangements several miles apart, the exact distance between the two stations being known, it will be possible to get photographs from which can be deduced with accuracy the path of the meteors, the velocity, and the distance from the earth.

The Columbia University Observatory was obliged, on account of the sale of the old observatory site and the storage of the instruments, to make arrangements for observing the expected shower from other places. Col. P. S. Michie of West Point placed the observatory there at the service of Professor Rees, and Mr. C. A. Post of Bayport offered his time and instruments. A report on the work done during the week, November 13th to 18th, will be presented to the Academy. WM. S. DAY.

Secretary.

SECTION OF GEOLOGY AND MINERALOGY.

At the meeting of November 25th, Mr. Charles Barnard presented a paper on 'Some Recent Changes in the Shore Line of Nantucket.' These changes have become apparent by comparison with the outlines indicated in Shaler's map of 1888 (Bull. No. 53, U. S. Geol. Survey). The shore line there represented as nearly straight, from a point just beyond the Range Lights to Brant Point, in the harbor, has become materially changed by a rapid advance of the beach on each side, so that the original shore

end of the breakwater is lost to sight in the sand or covered by buildings.

On the north shore, beyond the Apron Beach, the sea has steadily advanced upon the land, the increase of material at the breakwater having been evidently derived in large part from the bluffs.

At the eastern end of the harbor the narrow beach, styled the Haulover, between the main island at Manumet and the shore end of Great Point, was broken through by the sea in the storm during the night of December 16, 1896, and the opening has now become an inlet a mile in width, with a depth of 11 feet at low water, each end of the remaining beach having been bent back into the harbor in the form of a curved hook. The entrance of the tide through this inlet has caused a decided increase in the five narrow bars of sand, which extend like finger points from the shore of Coatue Beach. It does not appear to have seriously affected the current at the breakwater, nor reduced the scouring action of the tides at that point; but shoals seem to be growing at about one-third the distance between the harbor and the port entrance, at the slackwater caused by meeting of the tides from east and west.

The eastern shore, from the harbor south, shows a rapid destruction by the sea, and at Squam Pond a river of beach sand has been swept in.

At Sankaty Light the apron beach has very considerably increased, particularly at Siasconset, and to the south and west, the width of the beach now reaching about the third of a mile.

A similar advance of the sea is shown along the south shore, though to a less degree than on the east, the wastage of both shores having contributed to build out the apron beach at Siasconset.

The subject was further discussed by Professors R. E. Dodge, J. J. Stevenson, H. L. Osborn, J. F. Kemp and others.

On motion by Professor Stevenson, a committee of three was appointed by the Academy to prepare resolutions in reference to the recent death of its distinguished honorary member, Sir William Dawson, of Montreal.

ALEXIS A. JULIEN,
Secretary of Section.

SECTION OF BIOLOGY.

THE regular meeting took place on November 13, 1899, Professor Frederic S. Lee presiding. The following papers were then presented :

'On the Relation of the Centra and Intercentra in the Cervical Vertebrae of Lizards, Mosasaurs and *Sphenodon*,' by H. F. Osborn.

'The Discovery of a Mastodon's Tooth and Remains of a Boreal Vegetation on Staten Island,' by Arthur Hollick.

'A Report of the New York University Expedition to the Bermuda Islands in the Summer of 1899,' by C. L. Bristol.

Professor Osborn called attention to the confused statements relating to the cervical vertebrae in the Lizards, Mosasaurs and *Sphenodon*, and pointed out that both Gegenbaur and Wiedersheim, the principal German authorities on the Comparative Anatomy of Vertebrates, failed to recognize clearly the important part played by intercentra of the neck region. He then, commencing with *Sphenodon*, pointed out that we have a series of *intercentra* or intervertebral ossicles, extending throughout the whole length of the backbone, but considerably modified by a coalescence with the atlas and axis. In *Platecarpus*, the Cretaceous Mosasaur, on the other hand the intercentra of the axis and atlas are entirely free and separate, retaining their primitive wedge-shaped form, while the centrum proper or odontoid process is also free from the axis; in the remaining cervicals the intercentra are secondarily shifted forward upon the hypapophyses. *Varanus*, the monitor lizard, exhibits a still greater extension of these hypapophyses with the intercentra placed at their tips. In *Cyclurus*, on the other hand, the intercentra are still in their primitive position between the vertebrae. There is no question, therefore, that true intercentra are very important elements in Lizards and Mosasaurs, and that they are secondarily modified partly by coalescence with the atlas and partly by adhesion to the hypapophyses, this showing a complete change of function.

The leading facts in Professor Hollick's paper are as follows:

In the Moravian Cemetery at New Dorp, Staten Island, immediately in the rear of the

Kunhardt Mausoleum, was a swamp, which covered a superficial area of about 3,600 square feet. A small pool of water accumulated towards the center in time of rain and dried out during drought. The margin was a quaking bog of peat and sedges. It occupied a morainal basin, located about 1,200 feet from the southern edge of the moraine and about 120 feet above tide level.

Last summer, in the course of certain improvements in the development of the cemetery, the swamp was drained and the bog muck was dug out, so that at the present time the morainal basin is entirely free of water and mud.

During the progress of this work the organic remains, animal and vegetable, brought to light show that the basin was the site of a Quaternary pond. The surface deposit was of fine peat and a coarse peat, composed of various kinds of swamp vegetation. Below this was a fine organic mud, containing trunks and branches of trees, to a depth of about five or six feet. Below this was a black, sandy silt, distinctly stratified, and containing numerous cones and small twigs of white spruce (*Picea Canadensis* (Mill.) B. S. P.), a tree of northern range, which does not now extend further south than northern New England and the Adirondacks. Below the cones, at a depth of about 23 feet, was found a mastodon's molar.

The maximum depth of the entire deposit was about 25 feet and bore every indication of having been laid down in still water, in a continuous and unbroken series of layers; and, inasmuch as it was in a morainal basin, it must all have been post-morainal in age.

A considerable amount of charred wood was also found in connection with the cones, presumably indicating the presence of man. The probabilities are that a pond was formed in the morainal depression immediately after the recession of the ice sheet, and that this pond was a receptacle for silt, dust and decaying vegetation ever since, the accumulations finally filling it up and converting it into a swamp with a little pool of casual water in the middle.

The third New York University Expedition to Bermuda left New York on May 27th, via the Quebec Steamship Company's steamer *Orinoco*, and the last members to return arrived

on August 1st. The party consisted of Professor C. L. Bristol, Messrs. F. W. Carpenter, C. E. Brush, Jr., F. Erdwurm, of the graduating class; Messrs. Hill, Magnus and Wooley of the present Junior class, and Mr. A. Benton Müller.

The reconnaissance work of the two former years was continued from White's Island in Hamilton Harbor as headquarters. The buildings on the islands afforded far better facilities for laboratory work than was obtained on the other trips, and also brought the party nearer to the south shore and the Great Sound. An important feature was a series of pools constructed above tide level and supplied with plenty of running sea-water, in which a day's 'catch' could be examined alive at leisure. A naphtha launch and a small yacht gave the necessary facilities for collecting. The principal work was reconnaissance and many new forms were found among the *Crustacea*, *Echinoderms*, *Coelenterates*, *Tunicates*, *Mollusca*. Perhaps the most important single trip was that made to North Rock, an isolated fragment of the old atoll-shaped reef, about nine miles out at sea. At dead low tide a small area is laid bare but almost awash, and attainable only in the smoothest of water. Here the life of the ocean swarms and offers rare opportunities for study. As in the former years a large number of the showy fishes that abound in the coral reefs were brought home alive for the New York Aquarium. Notwithstanding the sudden fall of temperature at the northern edge of the Gulf Stream the system of regulation of the temperature is now so perfect that less than one per cent. die on the voyage. A pair of green parrot fishes of large size, and a large green murray about eight feet long were the most conspicuous among them, and are living and in good health at this date.

FRANCIS E. LLOYD,
Secretary.

TORREY BOTANICAL CLUB, OCT. 25, 1899.

THE scientific program opened with a paper by Dr. D. T. MacDougal on 'The Mycorrhiza of *Cephalanthera*,' describing the general characters of this Pacific coast plant, with special reference to its symbiotism, and with exhibition of specimens in alcohol. Dr. MacDougal's specimens form probably the most complete examples

of its root system ever procured, the plant growing among matted hemlock roots and very difficult to get at. Discussion by Dr. Britton of the taxonomic relations of *Cephalanthera* followed.

The second subject of the evening was that of Ferns, 'Notes on Ferns' were presented by Mrs. Britton, with specimens and lantern views. Dr. Underwood exhibited some very large examples of *Botrychium lanceolatum* from the foot of Mt. Rainier, reaching about 1 foot high, including roots, and with frond nearly 3 inches in length.

Mr. W. N. Clute spoke of finding *Dryopteris Goldieana* at Bedford Park, and of continued discoveries of *Dryopteris simulata*, usually in company with *Woodwardia areolata*.

Mrs. Britton spoke of the association of *Dryopteris simulata* on the Pocono with *Rhododendron maximum*, in very different surroundings; and called attention to its distinctly blue-green coloring.

Mr. Clute reported finding last July a new station for *Schizæa pusilla* at Allen's Bridge, N. J., on the east branch of the Wading river, in quantity, observed last July. The fertile fronds of the last year were then still remaining on the plant. Sterile fronds were coiling about neighboring stems as if with a trace of the climbing habit of its relative, *Lygodium*. This coiling tendency, added Dr. Britton, has occasioned the name Curly-grass, which was found in use in New Jersey for the *Schizæa*.

The Secretary referred to the successful transplanting of *Schizæa* into a locality near Lakewood, N. J., by Miss R. W. Farrington.

Miscellaneous notes constituted the remainder of the program. The Secretary made some remarks upon singularities in the distribution of *Aster Schreberi*, a species described by Nees in 1818, from a single plant, and afterward omitted by botanists, until the publication of the Illustrated Flora. The abundance of this species, which he finds characteristic of the Schoharie drainage-basin of the Catskills, contrasts strangely with its absence from other parts of that region.

Judge Brown reported finding *Solidago odora* on high ground near Sam's Point, late in the season, many scattered plants blooming at about 2,000° altitude.

Dr. Britton remarked that this forms an interesting addition to the number of coast plants found in the Shawangunk range. It has been claimed that the breaking up of sandstone rocks there has produced a sandy soil sufficiently similar to that of the seashore to permit the growth of certain arenophilous plants usually found only on the coast.

Dr. T. F. Allen spoke of a specimen of *Rhus vernicifera*, the lacquer tree of Japan, which is growing luxuriantly on his farm in Connecticut. It resembles our swamp sumach, *Rhus venenata*, in appearance, and is becoming a handsome tree. Some of his family who are sensitive to Rhus poisoning find it necessary to avoid going near it.

Dr. Britton also reported a gift to the Botanic Garden of about 200 volumes which had belonged to the botanist, David Hosack. They are in excellent condition, and some of them extremely rare. EDWARD S. BURGESS,

Secretary.

BIOLOGICAL SOCIETY OF WASHINGTON, 312TH MEETING, SATURDAY, NOVEMBER 19TH.

MR. F. A. LUCAS read a 'Letter from H. H. Field Concerning the Concilium Bibliographicum, and the Proposed Catalogue of the Royal Society,' calling attention to the expense of the proposed publication, even though no card catalogue was issued, and stating that the Concilium could carry out the entire scheme at a less cost than the incomplete publication proposed by the Royal Society.

Mr. Frederick V. Coville read a paper on 'The Botanical Explorations of Thomas Nuttall in California,' showing that the dates on which Nuttall is stated to have visited various localities were erroneously given.

Professor Barton W. Evermann described 'A Physical and Biological Survey of Lake Maxinkuckee,' giving the various problems whose solution was desired, and the methods employed for soundings, obtaining the temperature, and studying the plankton of the lake.

O. F. COOK, Secretary.

SCIENCE CLUB OF THE UNIVERSITY OF WISCONSIN.

THE November meeting of the Science Club of the University of Wisconsin was held on the 21st

instant, the Vice president, Mr. Edward Kremers, in the chair. The programme of the evening was a paper by Mr. Louis Kahlenberg on 'The Present Status of our Knowledge of Solutions.'

After an exposition of the modern theories of solution and of electrolytic dissociation, the speaker pointed out that his recent researches on non-aqueous solutions have shown that there are solutions that conduct electricity in which, according to molecular weight determinations there is no dissociation, and that furthermore, the molecular conductivity in some solutions does not change with the dilution, and that in others it decreases as the volume increases. These facts can not be harmonized with the theory of electrolytic dissociation.

In the criticism of the general theory of solutions it was emphasized that the solvent does not act merely as so much space, but that it has a far more important function, the very act of solution itself depending on a mutual interaction of solvent and solute.

The paper was discussed by Messrs. B. W. Snow, H. L. Russell, E. Kremers and C. F. Burgess. WM. H. HOBBS.

DISCUSSION AND CORRESPONDENCE.

AN ALIEN CLEMATIS IN NEW MEXICO

LAST July I found an interesting and peculiar *Clematis* growing along the road-side in the town of Las Vegas, N. M., apparently wild. It was clearly related to the *Clematis (Atragene) occidentalis* (Hornem.) of the adjacent mountains, but still quite distinct. It did not come into full flower until the *C. occidentalis* was over, and the flowers were yellow instead of blue or white. Careful comparisons showed that the plant was different from anything known in America, so I drew up a description, under the name of *C. crux-flava*, 'the yellow cross.' During the rest of the summer I examined a good deal of the country near Las Vegas, and nowhere was the new *Clematis* to be seen, except within the limits of the town. A very vigorous plant was found growing in a garden, but nobody knew how it got there. These facts suggested an alien, so I sent specimens to Dr. B. L. Robinson at Cambridge, and to Kew Gardens, requesting that they might be compared with the Asiatic species. From both places in due time came the reply